

**SAWTOOTH LODGE PWS #4080039  
SOURCE WATER ASSESSMENT REPORT**

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**DATE: November 27, 2000**



**State of Idaho  
Department of Environmental Quality**

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## Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the watershed characteristics.

This report, *Source Water Assessment for Sawtooth Lodge, Idaho*, describes the public drinking water system, the zone boundary of water contribution, and the associated potential contaminant sources located within these boundary. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Sawtooth Lodge drinking water system originates as a spring and forms Grandjean Creek in which the intake is located. The system has experienced levels of microbial bacteria contamination that exceed the drinking water maximum contaminant level, established by the Safe Drinking Water Act.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Due to the fairly short time associated with the movement of surface waters, source water protection activities should be aimed at short-term management strategies with the development of long-term management strategies to counter any future contamination threats. Source water protection activities should be coordinated the U.S. Forest Service, Idaho Dept. of Lands and other federal, state and local agencies.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact your regional IDEQ office or the Idaho Rural Water Association.

# SOURCE WATER ASSESSMENT FOR SAWTOOTH LODGE, IDAHO

## Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area, which in the case of Sawtooth Lodge is the entire watershed of Grandjean Creek with an inventory of significant potential sources of contamination identified near the delineated area is attached.

### Background

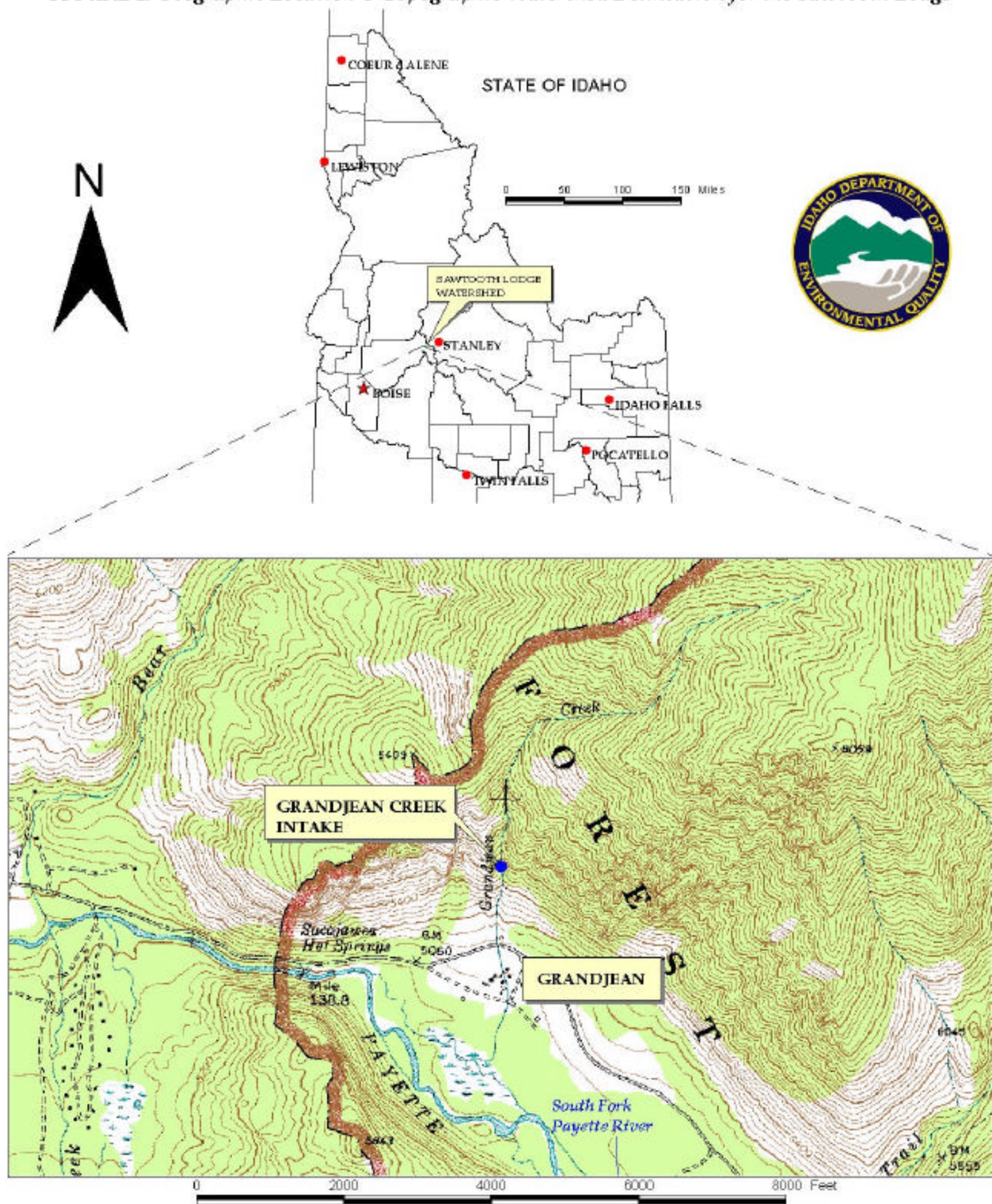
Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the intakes and watershed characteristics.

### Level of Accuracy and Purpose of the Assessment

There are over 2,900 public water sources in Idaho, that must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (IDEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. IDEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

FIGURE 1. Geographic Location & Topographic Watershed Delineation for the Sawtooth Lodge



## **Section 2. Conducting the Assessment**

### **General Description of the Source Water Quality**

Sawtooth Lodge is a seasonal resort located in Grandjean, Idaho that serves approximately 60 people. Grandjean is located approximately 80 miles northeast of Boise, Idaho. (Figure 1). The public drinking water system for Sawtooth Lodge is comprised of one intake in Grandjean Creek. Grandjean Creek is formed from a spring in mountainous terrain near the Sawtooth National Recreation Area.

The primary water quality issue currently facing Sawtooth Lodge is that of microbial (total coliform) contamination and the problems associated with managing this contamination.

### **Defining the Zones of Contribution—Delineation**

The Sawtooth Lodge water system originates as a spring that forms a stream as it flows onto the surface. To protect surface water systems from such potential contaminant pathways, the EPA required that the entire drainage basin be delineated upstream from the intake to the hydrologic boundary of the drainage basin (U.S. EPA, 1997b). This delineation is also referred to as a topographic delineation for systems with consisting of small streams. The delineation process established the physical area around an intake that became the focal point of the assessment.

The delineated source water assessment area for Sawtooth Lodge can best be described as a remote, forested mountainous watershed encompassing Grandjean Creek and consists of approximately 382.9 acres.

### **Identifying Potential Sources of Contamination**

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of surface water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by IDEQ and from available databases.

Land use within the Sawtooth Lodge source water delineated area is predominantly forested with seasonal homes, a seasonal resort and a hot springs pool. The homes and resort operate with septic systems.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination.

These involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply intake.

### **Contaminant Source Inventory Process**

A contaminant inventory of the study area was conducted during September of 2000. This involved identifying and documenting potential contaminant sources within the Sawtooth Lodge Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by IDEQ. A map showing the delineated area with the potential contaminant sources is included (Figure 2).

No potential contaminant sources potential contaminant sites were located within the delineated source water area of Grandjean Creek (see Table 1). Based on current information available a mining claim is located just outside the delineated area and approximately 2000 feet northwest of the intake. The exact location of this feature on the GIS coverage is approximate and the extent of the activity of the claim is unknown.

**Table 1. Sawtooth Lodge Potential Contaminant Inventory**

SITE #	Source Description	Source of Information	Potential Contaminants
NONE	NONE	NONE	NONE

**IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical**

### **Susceptibility Analyses**

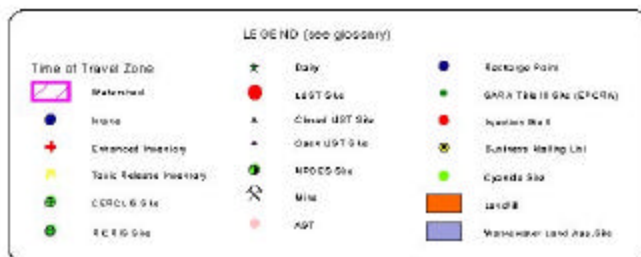
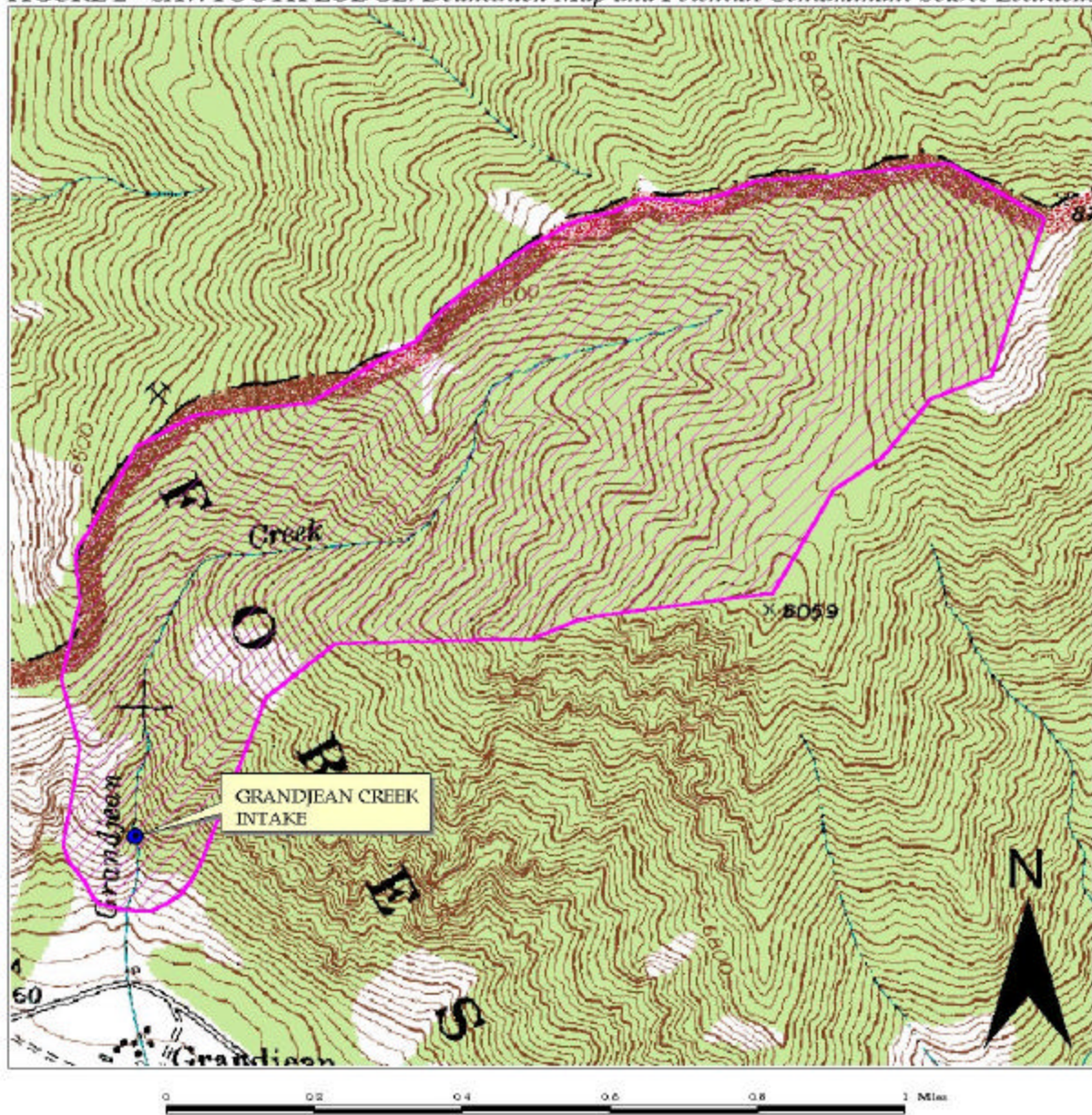
The susceptibility of the intake system was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity and construction of the intake, land use characteristic, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each intake is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

#### **Intake Construction**

The construction of the Sawtooth Lodge water system intake can directly affect the ability of the intake to protect the source from contaminants. The Sawtooth Lodge drinking water system consists of one intake that is used to produce surface water for domestic and fire protection uses. The intake in the Sawtooth Lodge system is located in Grandjean Creek approximately 900 feet upstream from the lodge area. The Sawtooth Lodge intake construction scored moderate in susceptibility, based on IDEQ/Public Health District sanitary survey records.



**FIGURE 2 - SAWTOOTH LODGE: Delineation Map and Potential Contaminant Source Locations**



**PWS# 4080039**  
**GRANDJEAN CREEK**

## Potential Contaminant Source and Land Use

The intake rated in the low category for the inorganic chemical class, low for volatile organic chemicals, and low for synthetic organic chemicals. The intake rated in the moderate category for contamination from microbial bacteria based on potential contaminant sources.

Land use in the delineated area is within a mountain forest with seasonal recreational facilities.

**Table 2. Summary of Sawtooth Lodge Susceptibility Evaluation**

Table 2. Summary of Sawtooth Lodge	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
	IOC	VOC	SOC	Microbial		IOC	VOC	SOC	Microbial
Grandjean Creek	L	L	L	M	M	L	L	L	H*

H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

H\* - Indicates source automatically scored as high susceptibility due to presence of either a VOC, SOC, or Microbial in the finished drinking water

## Susceptibility Summary

In terms of the total susceptibility score, it can be seen from Table 2 that the intake for the water system shows a high susceptibility to microbial contamination based on recent detections above Safe Drinking Water maximum contaminant levels.

Total coliform (microbial) bacteria were detected in 1999, causing the system to automatically be rated high in susceptibility to microbial contamination. It is possible that the detections are a result of the treatment or distribution system and not the source.

Total coliform bacteria are generally considered to be an indicator of pathogenic ground water contamination. Although total coliform bacteria itself does not represent a public health concern, other bacteria and viruses associated with it may represent serious health concerns. Total coliform bacteria are often associated with surface activities. Potential sources of bacteria contamination can include subsurface sewage disposal systems (septic tanks and drain fields), contaminated surface water and confined animal rearing areas.

The Sawtooth Lodge source water system has no significant contaminant sources within the delineated watershed, therefore, rates low in susceptibility to organic volatile and synthetic chemical classes and also for inorganic chemical classes. The system rates high in susceptibility to microbial contamination due to recent detections of total coliform. Surface systems are vulnerable to microbial contamination in general and adequate treatment is important. The system rated moderate for intake construction.



### **Section 3. Options for Source Water Protection**

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For Sawtooth Lodge, source water protection activities should focus on environmental education with recreational users, residents and activities within the vicinity of the Grandjean Creek watershed. The system may wish to explore possibilities of treatment and distribution upgrades. Due to the relatively short time involved with the movement of surface water, source water protection activities should be aimed at short-term management strategies with an emphasis on dealing with long-term future impacts from these same sources. Source water protection activities should be coordinated with private land owners, the U.S. Forest Service, Sawtooth National Recreation Area, Idaho Department of Lands and other agencies with lands and jurisdiction within the delineated source water area.

While the surface water sources possesses adequate quality and yield, limitations and vulnerability related to the construction of the intakes and treatment processes should be reviewed. An investigation of the feasibility of a shift to potential ground water sources to augment or replace the current surface water system should be considered.

## **Assistance**

Public water supplies and others may call the following IDEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the IDEQ office for preliminary review and comments.

Boise Regional IDEQ Office                      (208) 373-0550

State IDEQ Office                                      (208) 373-0502

Website: <http://www2.state.id.us/deq>

## References Cited

EPA (U.S. Environmental Protection Agency), 1997, State Methods for Delineating Source Water Protection Areas for Surface Water Supplied Sources of Drinking Water, EPA 816-R-97-008, 40p.

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997, "Recommended Standards for Water Works"

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Dept. of Environmental Quality, 1999, Idaho Source Water Assessment Plan

Howarth, Rob, 1996, Ground Water Quality Technical Report No. 7, An Evaluation of Bacteria in Ground Water Near Mountain Home, Elmore County, Idaho, Idaho Division of Environmental Quality, Southwest Idaho Regional Office

U.S. Government Printing Office, 1995, Code of Federal Regulations, 40 CFR 112, Appendix C-III, Calculation of the Planning Distance

## Attachment A

### Sawtooth Lodge Susceptibility Analysis Worksheet



The final scores for the susceptibility analysis were determined from the addition of the Potential Contaminant Source/Land Use Score and Source Construction Score.

Final Susceptibility Scoring:

0 - 7    Low Susceptibility

8 - 15   Moderate Susceptibility

16      High Susceptibility

## 1. System Construction

## SCORE

Intake structure properly constructed	YES	0
Infiltration gallery or well under the direct influence of Surface Water	NO	2

Total System Construction Score 2

## 2. Potential Contaminant Source / Land Use

IOC  
ScoreVOC  
ScoreSOC  
ScoreMicrobial  
Score

Predominant land use type (land use or cover)	BASALT FLOW, UNDEVELOPED, OTHER	0	0	0	0
Farm chemical use high	NO	0	0	0	
Significant contaminant sources *	NO				
Sources of class II or III contaminants or microbials	present within the small stream segment of	0	0	0	4
Agricultural lands within 500 feet	NO	0	0	0	0
Three or more contaminant sources	NO	0	0	0	0
Sources of turbidity in the watershed	NO	0	0	0	0

Total Potential Contaminant Source / Land Use Score 0 0 0 8

## 3. Final Susceptibility Source Score

2

2

2

10

## 4. Final Source Ranking

Low

Low

Low

Moderate

\* Special consideration due to significant contaminant sources  
the source water has no special susceptibility concerns

# POTENTIAL CONTAMINANT INVENTORY

## LIST OF ACRONYMS AND DEFINITIONS

**AST (Aboveground Storage Tanks)** – Sites with aboveground storage tanks.

**Business Mailing List** – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

**CERCLIS** – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund, is designed to clean up hazardous waste sites that are on the national priority list (NPL).

**Cyanide Site** – DEQ permitted and known historical sites/facilities using cyanide.

**Dairy** – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

**Deep Injection Well** – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

**Enhanced Inventory** – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (IDEQ) during the primary contaminant inventory.

**Floodplain** – This is a coverage of the 100year floodplains.

**Group 1 Sites** – These are sites that show elevated levels of contaminants and are not within the priority one areas.

**Inorganic Priority Area** – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

**Landfill** – Areas of open and closed municipal and non-municipal landfills.

**LUST (Leaking Underground Storage Tank)** – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

**Mines and Quarries** – Mines and quarries permitted through the Idaho Department of Lands.)

**Nitrate Priority Area** – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

**NPDES (National Pollutant Discharge Elimination System)** – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

**Organic Priority Areas** – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

**Recharge Point** – This includes active, proposed, and possible recharge sites on the Snake River Plain.

**RICRIS** – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

**SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities)** – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

**Toxic Release Inventory (TRI)** – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

**UST (Underground Storage Tank)** – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

**Wastewater Land Applications Sites** – These are areas where the land application of municipal or industrial wastewater is permitted by IDEQ.

**Wellheads** – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

**NOTE:** Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.